

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re, Application of:

Thomas E. Drake, Jr., et al.

Serial No.

10/634,342

Filing Date:

August 5, 2003

Group Art Unit:

2877

Examiner:

Lee, Hwa S.

Title:

METHOD AND APPARATUS FOR ULTRASONIC LASER  
TESTING

Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Certification Under 37 C.F.R. 1.8****Date of Mailing: August 9, 2005**

I hereby certify that this correspondence is being deposited with the United States Postal Service via First Class Mail with sufficient postage under 37 CFR § 1.8 on the date indicated above and are addressed to the Mail Stop: RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Rebecca J. Morrison

**INFORMATION DISCLOSURE  
STATEMENT UNDER 37 CFR § 1.97(b)(1)**

Dear Sir:

Applicant respectfully requests, pursuant to 37 C.F.R. §§ 1.97 and 1.98, that the art listed on the attached PTO-1449 form be considered and cited in the examination of the above-identified application. A copy of the art is enclosed for the convenience of the Examiner.


Citation of the documents shall not be construed as:

- 1) an admission that the documents are necessarily prior art with respect to the instant invention;
- 2) a representation that a search has been made, other than as described above; or
- 3) an admission that the information cited herein is, or is considered to be, material to patentability as defined in § 1.56(b).

While Applicants believe no additional fees are due, if any fees are due, the Commissioner is hereby authorized to charge Deposit Account No. 50-2240 of Koestner Bertani, LLP.

Should the Examiner have any questions or desire further clarification, the Examiner is invited to telephone the undersigned at the number listed below. Please reference Attorney Docket No. 1017.P051USC1.

Respectfully submitted,

By: 

Robert A. McLauchlan  
Reg. No. 44,924

ATTORNEY FOR APPLICANT

Dated: August 9, 2005

Koestner Bertani, LLP  
4201 W. Parmer Lane  
Suite A-100  
Austin, Texas 78727  
(512) 399-4100  
(512) 692-2529 (Fax)

### **3. PATENT INITIAL DISCLOSURES**

#### **3-1. Disclosure of Asserted Claims and Preliminary Infringement Contentions.**

3-1 (a) United States Patent US 6,378,387 B1, April 30, 2002, Claim 1, A method for Non-destructive Inspection and Testing of Aircraft Components, the steps including:

- (1) Creating a database comprising at least one profile of a prototypical aircraft component;
- (2) Maintaining an enclosure at constant environmental conditions;
- (3) Placing at least one aircraft component into the enclosure: allowing sufficient time to permit the aircraft component to reach the constant environmental conditions;
- (4) Placing reference markers on specific areas of the aircraft component;
- (5) Reading the location of the reference markers;
- (6) Comparing said reading with said at least one profile;
- (7) Report the resultant of said comparison.

3-1 (b) Lockheed-Martin has built two Component Laser Ultrasonic inspection systems in Fort Worth, Texas; such system is shown on Page 4, in Figure 1 of the Nondestructive Testing Information Analysis Center (NTIAC) Newsletter, Volume 27, No. 5, Issue Date: September 2002, BATES A000001-A000005.

3-1 (c) Chart on Aerobotics Inc. United States Patent, US 6,378,387 B1, April 30, 2002, Claim 1. provisions which is infringed by Lockheed Martin Corp. as stated and shown in the Nondestructive Testing Information Analysis Center (NTIAC) Newsletter, Volume 27, No. 5, Issue Date: September 2002, BATES A000001 – A000005, as confirmed by Douglas A. Froom onsite at the Lockheed facility in Fort Worth, Texas on July 1, 2003:

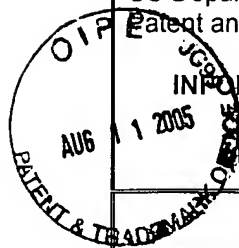
(1) A method for Non-destructive Inspection and Testing of Aircraft Components, the steps including:	(1) Page 4 of said Newsletter, 3 <sup>rd</sup> paragraph: "Finally, the two laser beams are indexed over the composite surface with an optical scanner to <u>produce traditional NDE images</u> ";
(2) Creating a database comprising at least one profile of a prototypical aircraft component;	(2) Page 4 of said Newsletter, "An inside look at the Laser UT <sup>TM</sup> System", 4 <sup>th</sup> paragraph: "All ultrasonic waveform are digitally captured, processed and permanently stored while the <u>inspection point is indexed over the composite surface</u> ";
(3) Maintaining an enclosure at constant environmental conditions;	(3) Page 4 of said Newsletter, Figure 1 of said Newsletter shows <u>picture of the enclosure</u> ; Page 4, 2 <sup>nd</sup> paragraph: "These lasers are not eye-safe and the inspection cell is interlocked to protect the operators";
(4) Placing at least one aircraft component into the enclosure: allowing sufficient time to permit the aircraft component to reach the constant environmental conditions;	(4) Page 4 of said Newsletter, Figure 1 depicts picture of aircraft <u>component within the enclosure</u> ;
(5) Placing reference markers on specific areas of the aircraft component;	(5) Inherent in robotic control subset on index, initial alignment, and multiple robot relocations due to size of component or a highly contoured surface: Page 4 of said Newsletter, "An inside look at the Laser UT <sup>TM</sup> System", 3 <sup>rd</sup> paragraph: " <u>A five-axis robot moves the inspection head to the best position for scanning each region of the part. Scan coverage can be as large as 6 by 6 feet for a single inspection view. Parts with significant contour are typically sectioned into a series of smaller regions so each subsection remains within the constraints of the system</u> ";
(6) Reading the location of the reference markers;	(6) Page 4 of said Newsletter, "An inside look at the Laser UT <sup>TM</sup> System", 4 <sup>th</sup> paragraph: "All ultrasonics waveforms are digitally captured, processed and permanently stored while the <u>inspection point is indexed over the</u>

	composite surface”;
(7) Comparing said reading with said at least one profile;	(7) Page 1 of said Newsletter, “A Look at Laser Ultrasonics and Lockheed Martin’s Laser UT™ System”, 2 <sup>nd</sup> paragraph: “A permanent digital record of the results provided instantaneously”; and Page 3 of said Newsletter “Non-Destructive Tests For Zero-Defect Assurance”, 1 <sup>st</sup> paragraph: “Composites used for flight critical structures in aerospace applications require rigorous checks against specified quality standards. <u>Statistical sampling can establish a “benchmark” that reveals a defect rate</u> ”;
(8) Report the resultant of said comparison.	(8) Page 1 of said Newsletter, “A Look at Laser Ultrasonics and Lockheed Martin’s Laser UT™ System”, 3 <sup>rd</sup> paragraph: “After more than 18 years in development, Laser UT™ is fully engaged in the composite production process at LM Aero, where it has replaced conventional water-based ultrasonic systems and is <u>verifying that the F-22 fighter inlet components are free of defects.</u> ”; Page 4 of said Newsletter, “An inside look at the Laser UT™ System, 4 <sup>th</sup> paragraph: “Data management is performed with an automated archival system and an Oracle database.”; and Page 3 of said Newsletter, “Non-Destructive Tests For Zero-Defect Assurance”, 1 <sup>st</sup> paragraph: “But no matter how low this rate may be, the possible cost of a mechanical failure and the resulting loss of life, aircraft or mission- <u>from even one, minute flaw</u> -mandates that each fracture-critical part be entirely tested.”

- (10) Reduction to practice of Claim 1: NDI Equipment Status Report, dated January 1989, BATES A000325; USAF McClellan Air Force Base, SPACEMAKER Newspaper, dated June 19, 1997, article "NDI clocks in with aircraft number 150", BATES A000326 – A000327; civilian personnel position description of Douglas A. Froom, dated July 10, 1989, documenting inception through reduction to practice, BATES A000328 – A000332.

3.2 (b) (continued) Evidence of Conception of Additional Robotic Laser Ultrasonics Non-Destructive Inspection Application of Claim 1:

- (1) Conceptual Design of Robotic Laser Ultrasonics-1988;
- (2) Documentation of Robotic Laser Ultrasonics Design: "Aviation Week & Space Technology", March 13, 1989 issue, article title: "USAF Expects Robotic Inspection Facility to Cut Maintenance Costs", where such article state: "Froom has designed an advanced laser ultrasonic system that will not contaminate components with water and increase system throughput. Funds have recently been approved to build it, Froom said", BATES A000333-A000340;
- (3) Study contract awarded September 21, 1990, Laser Ultrasonics or Alternative NDI, Volume I which provides for evidence of conception, design and development of Claim 1, BATES A000341-A000446;
- (4) Specifications for Procurement completed July 14, 1993 of Claim 1, BATES A000447 - A000490;
- (5) Contract Award of Claim 1 on August 16, 1993, BATES A000491 - A000492;
- (6) Reduction to practice of Claim 1 on February 6, 1996, BATES A000493-A000501;
- (7) USAF McClellan Air Force Base, SPACEMAKER Newspaper, dated February 22, 1996, article "NDI says hi to LUIS", documentation of reduction to practice in the inspection of A-10 and F-117 aircraft, BATES A000502.



FORM PTO-1449 US Department of Commerce Patent and Trademark Office				Docket Number 1017.P051USC1		Serial Number 10/634,342		
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Use Several Sheets if Necessary)				Filing Date August 5, 2003		Group Art Unit 2877		
<b>U. S. PATENT DOCUMENTS</b>								
EXAMINER INITIAL	X	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
	A1	3,911,733	10/14/75	Bhuta, et al.	73	88	4/1/74	
	A2	3,992,627	11/16/76	Stewart	250	312	4/9/75	
	A3	4,349,112	9/14/82	Wilks, et al.	209	538	3/31/80	
	A4	4,355,538	10/26/82	Hall	73	811	2/26/81	
	A5	4,422,177	12/20/83	Mastronardi, et al.	378	17	6/16/82	
	A6	4,803,639	2/7/89	Steele, et al.	364	507	2/25/86	
	A7	4,809,308	2/28/89	Adams, et al.	378	99	2/20/86	
	A8	4,841,460	6/20/89	Dewar, et al.	364	571.02	9/8/87	
	A9	5,014,293	5/7/91	Boyd, et al.	378	197	10/4/89	
	A10	5,065,630	11/19/91	Hadcock, et al.	73	802	6/12/90	
<b>FOREIGN PATENT DOCUMENTS</b>								
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	B1							X
<b>OTHER DOCUMENTS</b> (Including Author, Title, Date, Pertinent Pages, Etc.)								
	C1	NTIAC Newsletter; Vol. 27, No. 5, September 2002, 5 pp.						
	C2	Froom, Douglas A., et al.; Solving Problems with Advanced Technology, 1999 IEEE, 4 pp.						
	C3	Alkire, M.G., Department of the Air Force Memo regarding Construction Project Data; May 7, 1982, Bates 000010 through Bates 000068						
	C4	U.S. Air Force, Military Construction Project Data, April 14, 1982, Bates 000074 though Bates 000129						
	C5	U.S. Air Force, Attachment I to Request for Environmental Impact Analysis, December 2, 1982, Bates 000130 through Bates 000167						
	C6	Stanghellini, Frank D., Department of the Air Force Memo regarding Criteria Changes, January 9, 1985, Bates 000168 through Bates 000214						
	C7	Metro Today, The Sacramento Union; May 12, 1983, Bates 000215 through Bates 000216						
	C8	Letter Contract Between Department of the Air Force and Par Systems Corp., August 3, 1984, Bates 000217 through Bates 000312						
	C9	Timeline and Equipment List for Contract Between Department of the Air Force and Par Systems Corp., August 3, 1984, Bates 000313 through Bates 000325						
EXAMINER				DATE CONSIDERED				

FORM PTO-1449 US Department of Commerce Patent and Trademark Office				Docket Number 1017.P051USC1		Serial Number 10/634,342	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Use Several Sheets if Necessary)				Filing Date August 5, 2003		Group Art Unit 2877	

U. S. PATENT DOCUMENTS							
EXAMINER INITIAL	X	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A11	5,113,079	5/12/92	Matulka	250	550	9/5/90
	A12	5,119,408	6/2/92	Little, et al.	378	4	10/31/90
	A13	5,122,672	6/16/92	Mansour	250	571	9/7/90
	A14	5,140,533	8/18/92	Celette	364	559	3/22/90
	A15	5,295,073	3/15/94	Celette	364	424	10/3/91
	A16	5,319,567	6/7/94	Ebenstein	364	474.34	12/3/93
	A17	5,384,717	1/24/95	Ebenstein	364	560	11/23/92
	A18	5,442,572	8/15/95	Kiridena, et al.	364	560	6/2/94
	A19	5,490,195	2/6/96	Berkley	378	72	5/18/94
	A20	5,541,856	7/30/96	Hammermeister	364	552	11/8/93

FOREIGN PATENT DOCUMENTS								
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	B1							X

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)		
	C10	Spacemaker, June 19, 1997, Bates 000326 through 000327
	C11	Civilian Personnel Position Description, Department of the Air Force; July 10, 1989, Bates 000328 through Bates 000332
	C12	Aviation Week & Space Technology, March 13, 1989, Bates 000333 through Bates 000336
	C13	UltraOptec, Laser Ultrasonic System, 1999 IEEE, Bates 000337 through Bates 000340
	C14	J.W. Bader, et al., Laser Ultrasonics or Alternative NDI Composite Defect, Nov. 20, 1990, Bates 000342 through Bates 000446
	C15	Douglas A. Froom, Statement of Work for Advanced Ultrasonic Component Inspection System, July 14, 1993, Bates 000447 through 000490
	C16	Award of Contract from Department of the Air Force, August 11, 1993, Bates 000491 through Bates 000492
	C17	UltraOptec, LUIS Phase 3 Acceptance Test Report, February 16, 1996, Bates 000493 through Bates 000501
	C18	Spacemaker, February 22, 1996, Bates 000502

EXAMINER	DATE CONSIDERED
----------	-----------------



FORM PTO-1449 US Department of Commerce Patent and Trademark Office				Docket Number 1017.P051USC1		Serial Number 10/634,342	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Use Several Sheets if Necessary)				Filing Date August 5, 2003		Group Art Unit 2877	
<b>U. S. PATENT DOCUMENTS</b>							
EXAMINER INITIAL	X	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A21	5,552,984	9/3/96	Crandall, et al.	364	424.03	9/16/93
	A22	5,574,226	11/12/96	Reuther, et al.	73	669	4/6/95
	A23	5,637,812	6/10/97	Baker, et al.	73	865.6	11/14/94
	A24	5,848,115	12/8/98	Little, et al.	378	4	5/2/97
	A25	6,023,985	2/15/00	Fournier	73	865.6	3/16/98
	A26	6,047,041	4/4/00	Ellinger	378	58	9/8/97
	A27	6,205,240 B1	3/20/01	Pietrzak, et al.	382	152	11/18/97
	A28	6,220,099 B1	4/24/01	Marti, et al.	73	633	1/15/99
	A29	6,360,621 B1	3/26/02	Eldred, et al.	73	865.6	6/25/99
	A30	6,378,387 B1	4/30/02	Froom	73	865.8	8/25/00
	A31	6,466,643 B1	10/15/02	Bueno, et al.	378	58	8/22/00
	A32	6,571,008 B1	5/27/03	Bandyopadhyay, et al.	382	154	8/6/99
	A33	6,637,266 B1	10/28/03	Froom	73	583	2/20/02
<b>FOREIGN PATENT DOCUMENTS</b>							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	B1						X
<b>OTHER DOCUMENTS</b> (Including Author, Title, Date, Pertinent Pages, Etc.)							
	C1						
	C2						
	C3						
	C4						
	C5						
EXAMINER				DATE CONSIDERED			